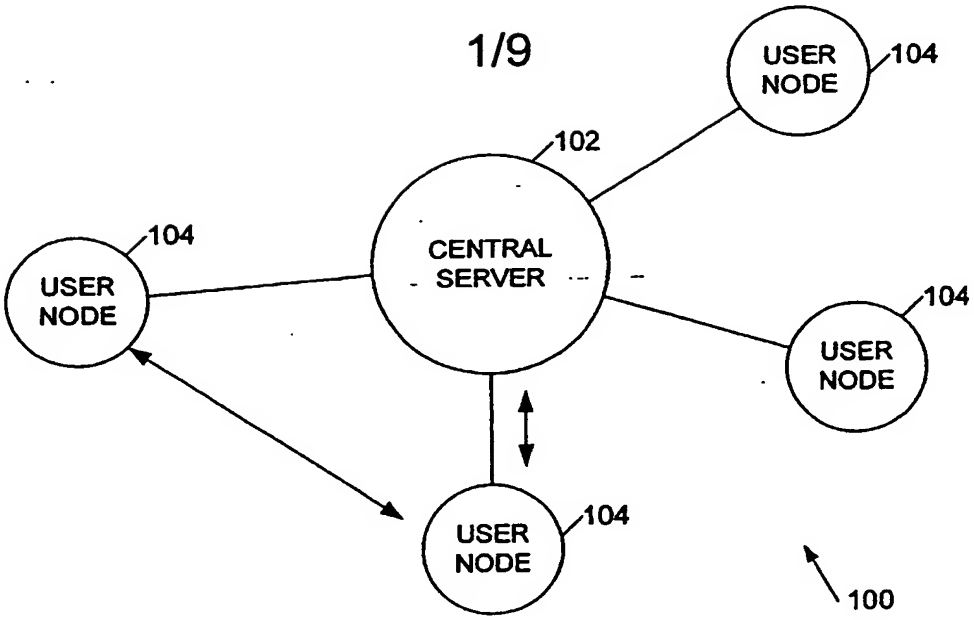

Figure 1a
(PRIOR ART)

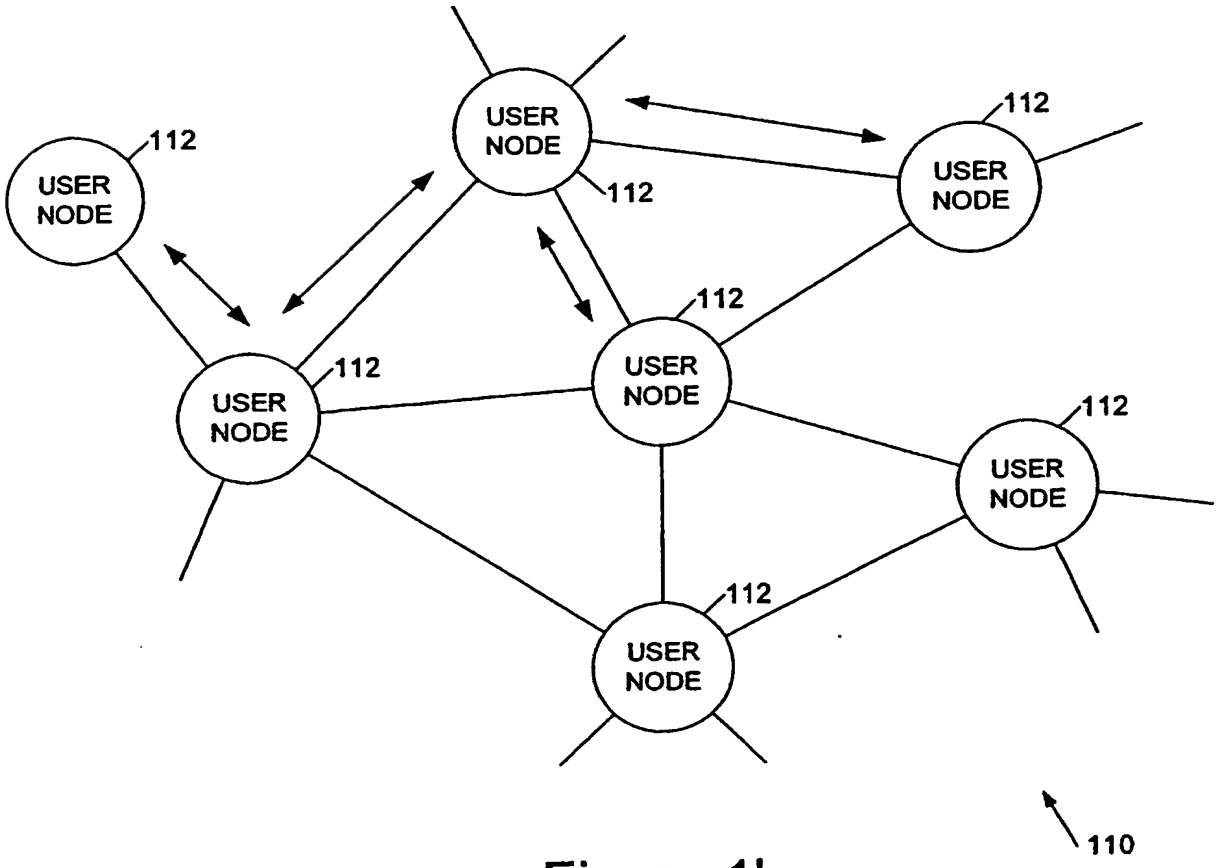

Figure 1b
(PRIOR ART)

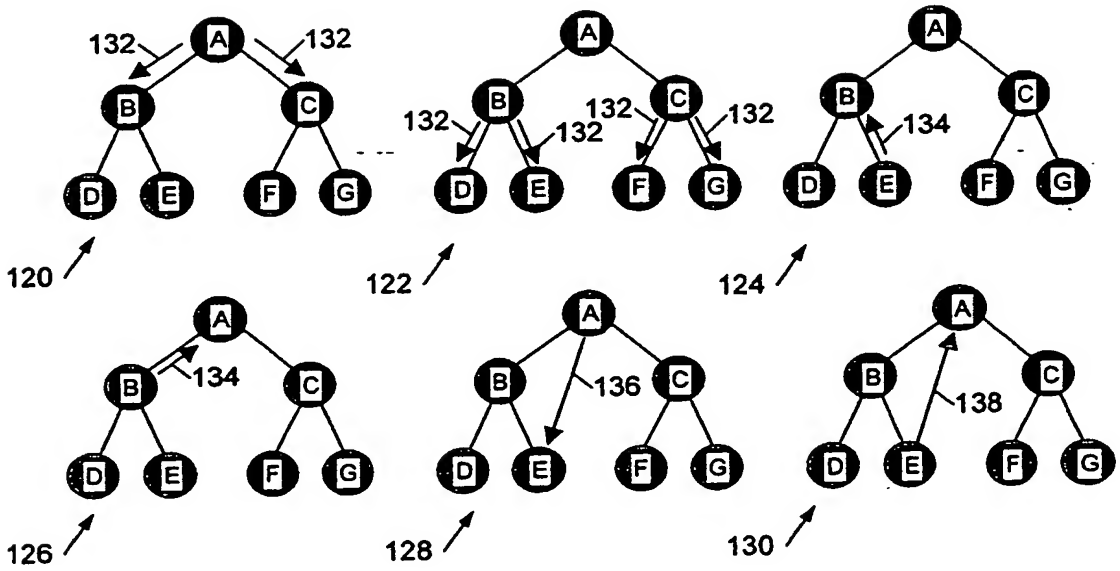

Figure 1c
(PRIOR ART)

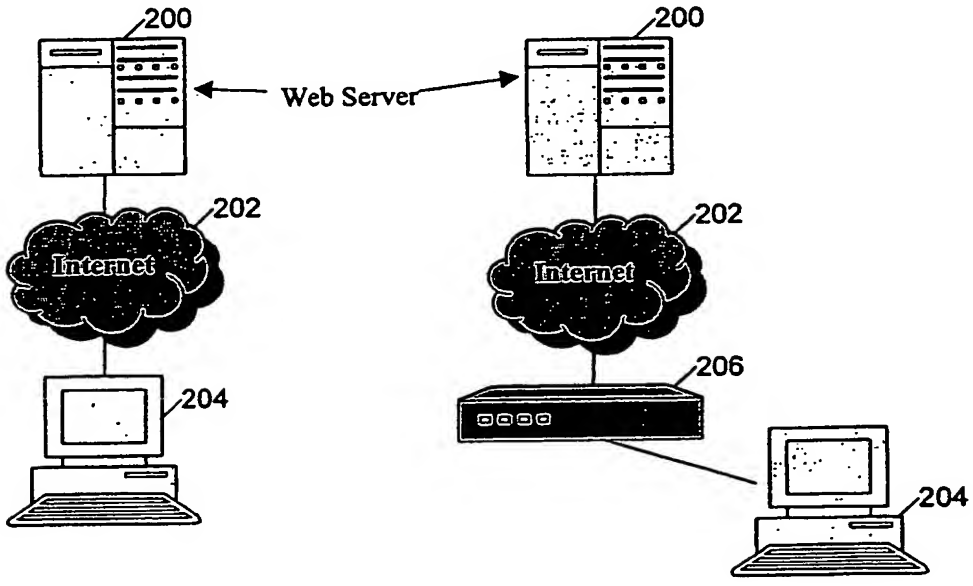

Figure 2a
(PRIOR ART)

Figure 2b
(PRIOR ART)

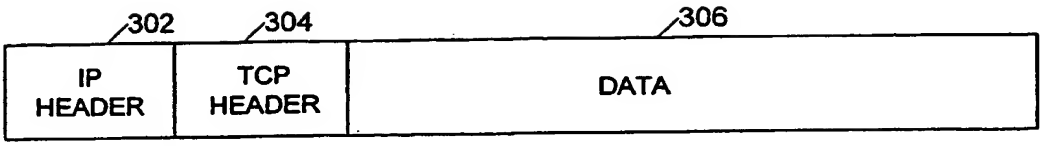

Figure 3a
(PRIOR ART)

300

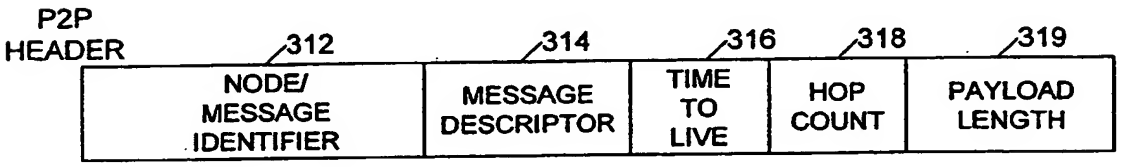

Figure 3b
(PRIOR ART)

310

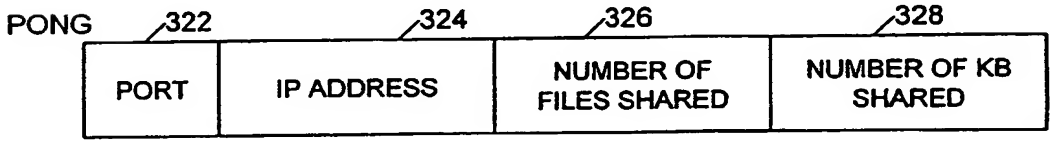

Figure 3c
(PRIOR ART)

320

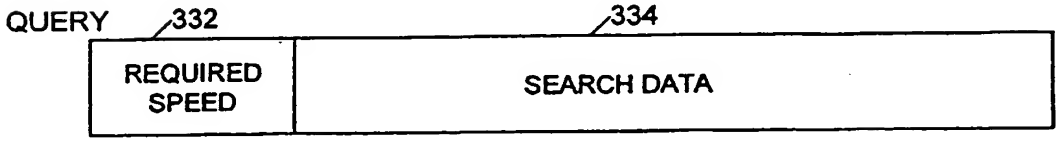

Figure 3d
(PRIOR ART)

330

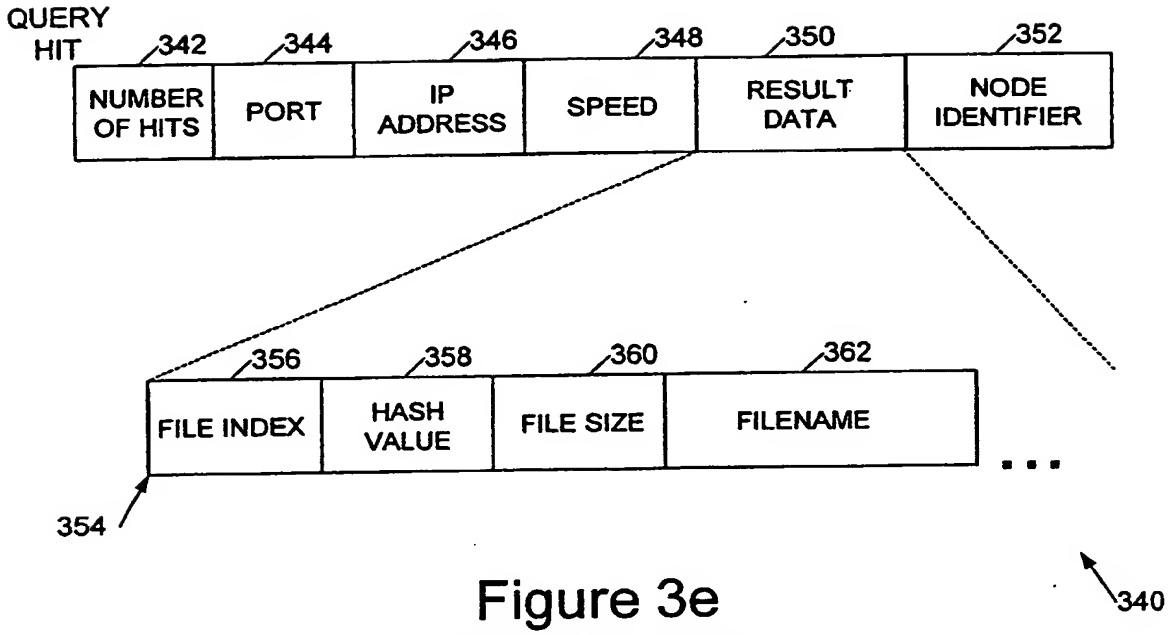

Figure 3e
(PRIOR ART)

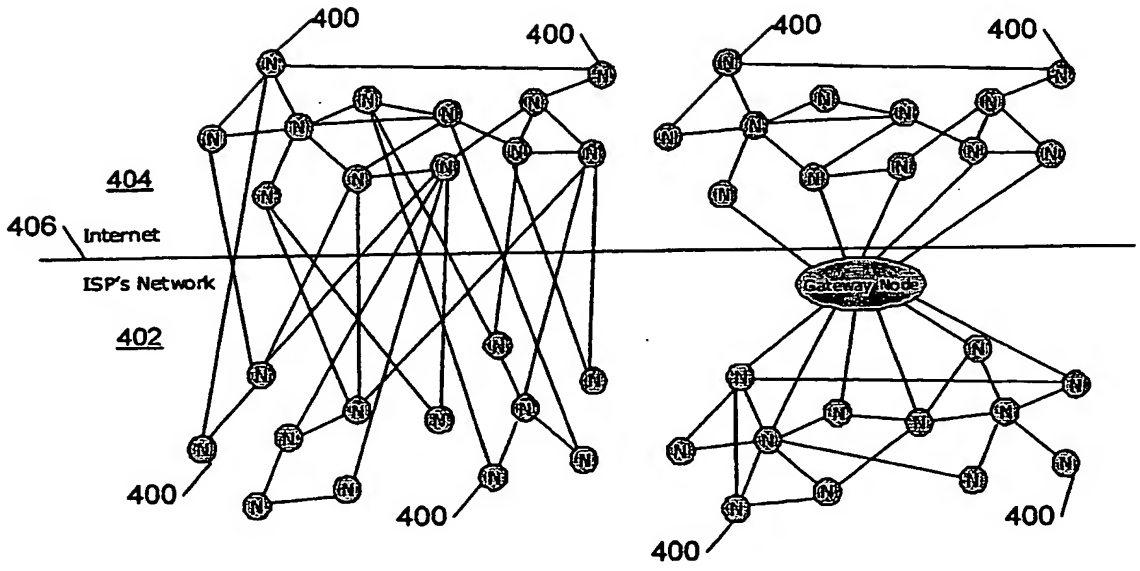

Figure 4a

Figure 4b

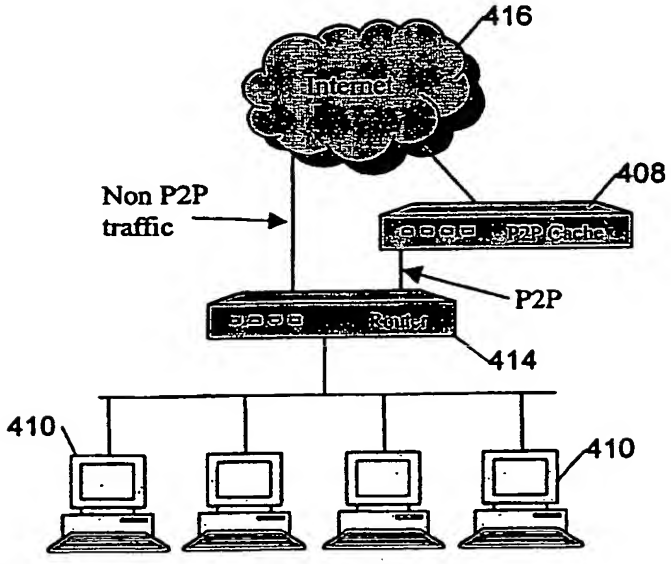

Figure 4c

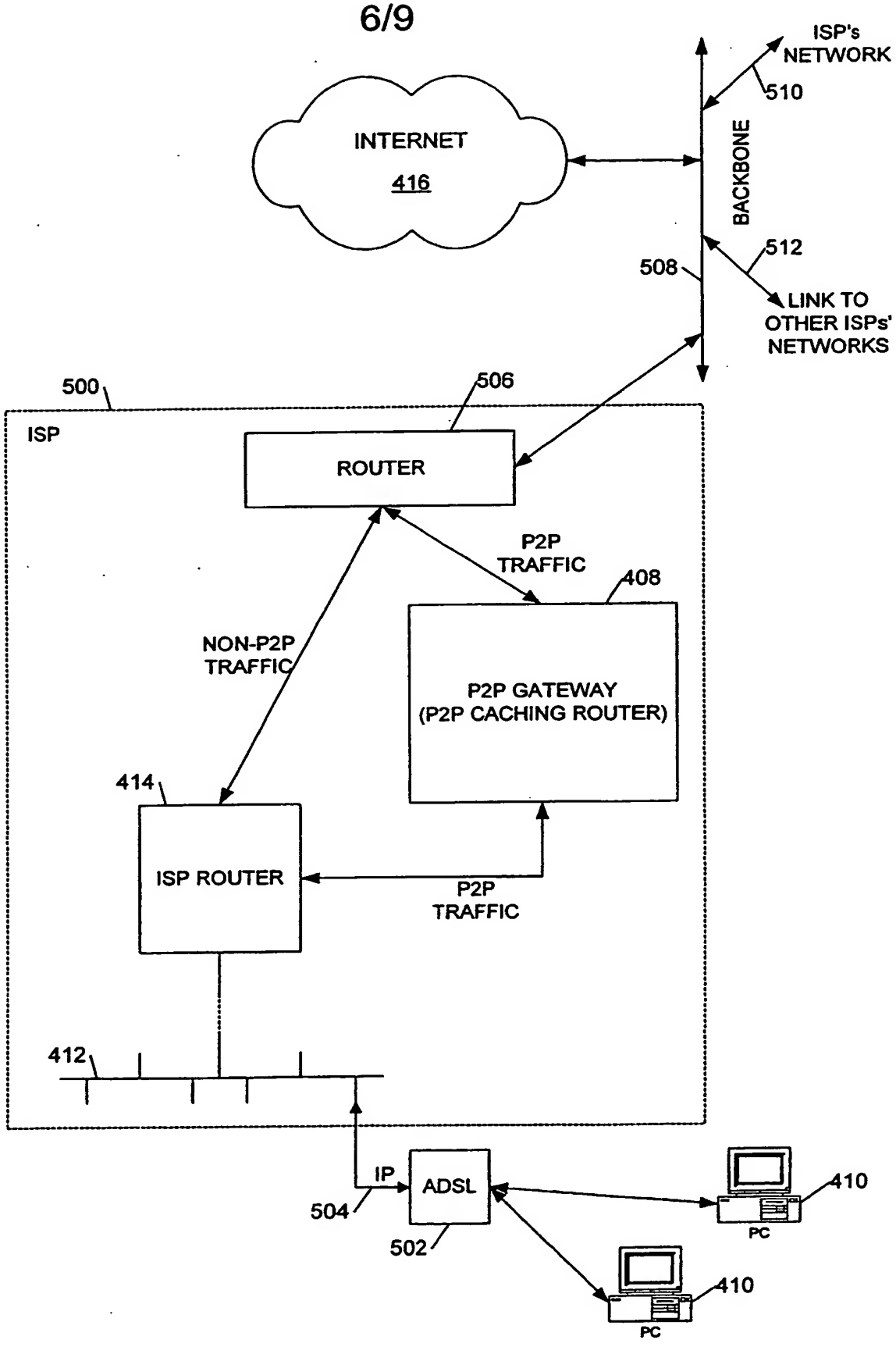
ISP's NETWORK
510
INTERNET
416
BACKBONE
512
508
LINK TO OTHER ISPs' NETWORKS
500
506
ISP
ROUTER
P2P TRAFFIC
408
NON-P2P TRAFFIC
P2P GATEWAY (P2P CACHING ROUTER)
414
ISP ROUTER
P2P TRAFFIC
412
IP
504
ADSL
502
PC
410
PC
410

Figure 5a

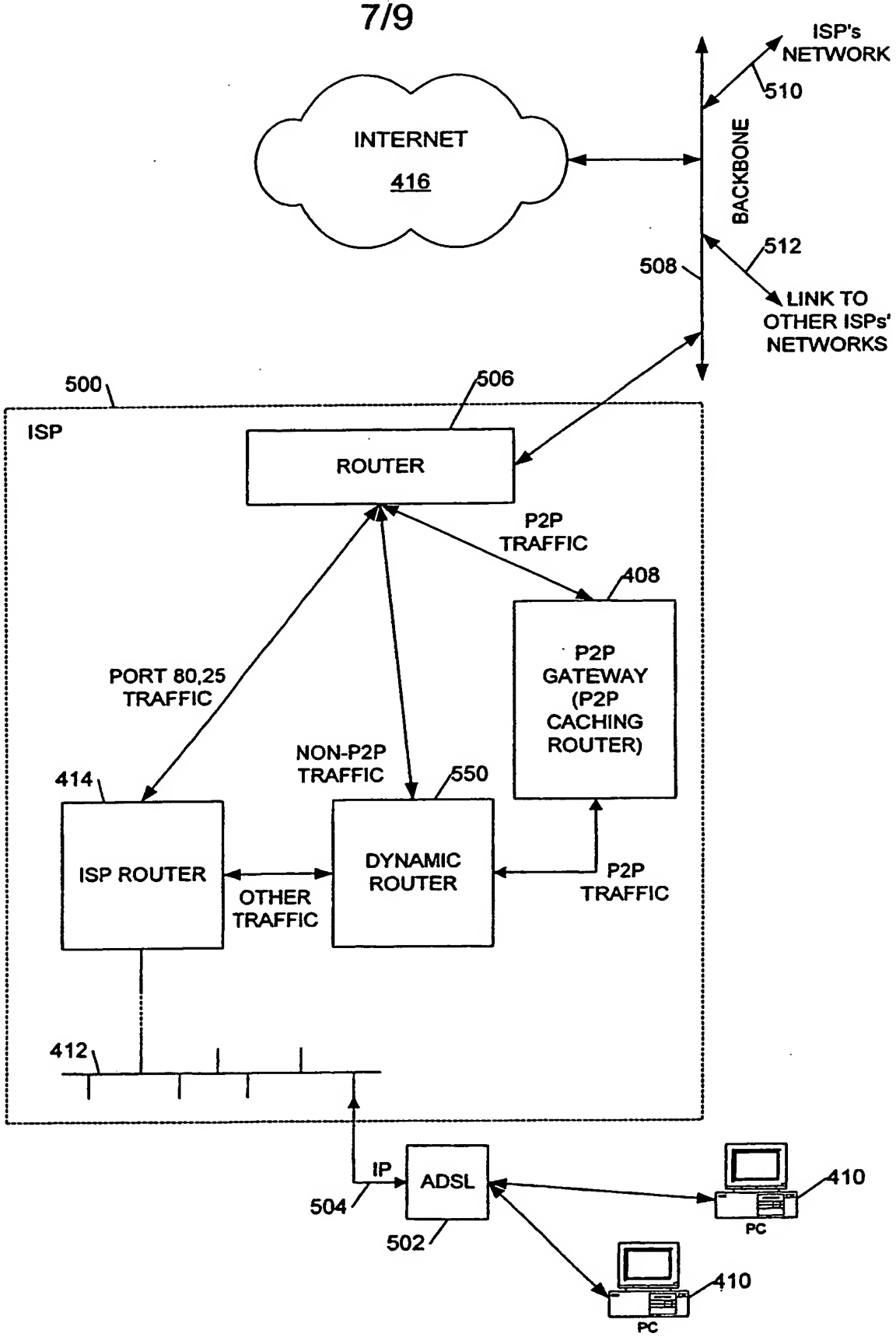
ISP's NETWORK
510
INTERNET
416
BACKBONE
512
508
LINK TO OTHER ISPs' NETWORKS
500
506
ISP
ROUTER
P2P TRAFFIC
408
P2P GATEWAY (P2P CACHING ROUTER)
PORT 80,25 TRAFFIC
NON-P2P TRAFFIC
550
414
ISP ROUTER
OTHER TRAFFIC
DYNAMIC ROUTER
P2P TRAFFIC
412
IP
ADSL
504
502
410
PC
410
PC

Figure 5b

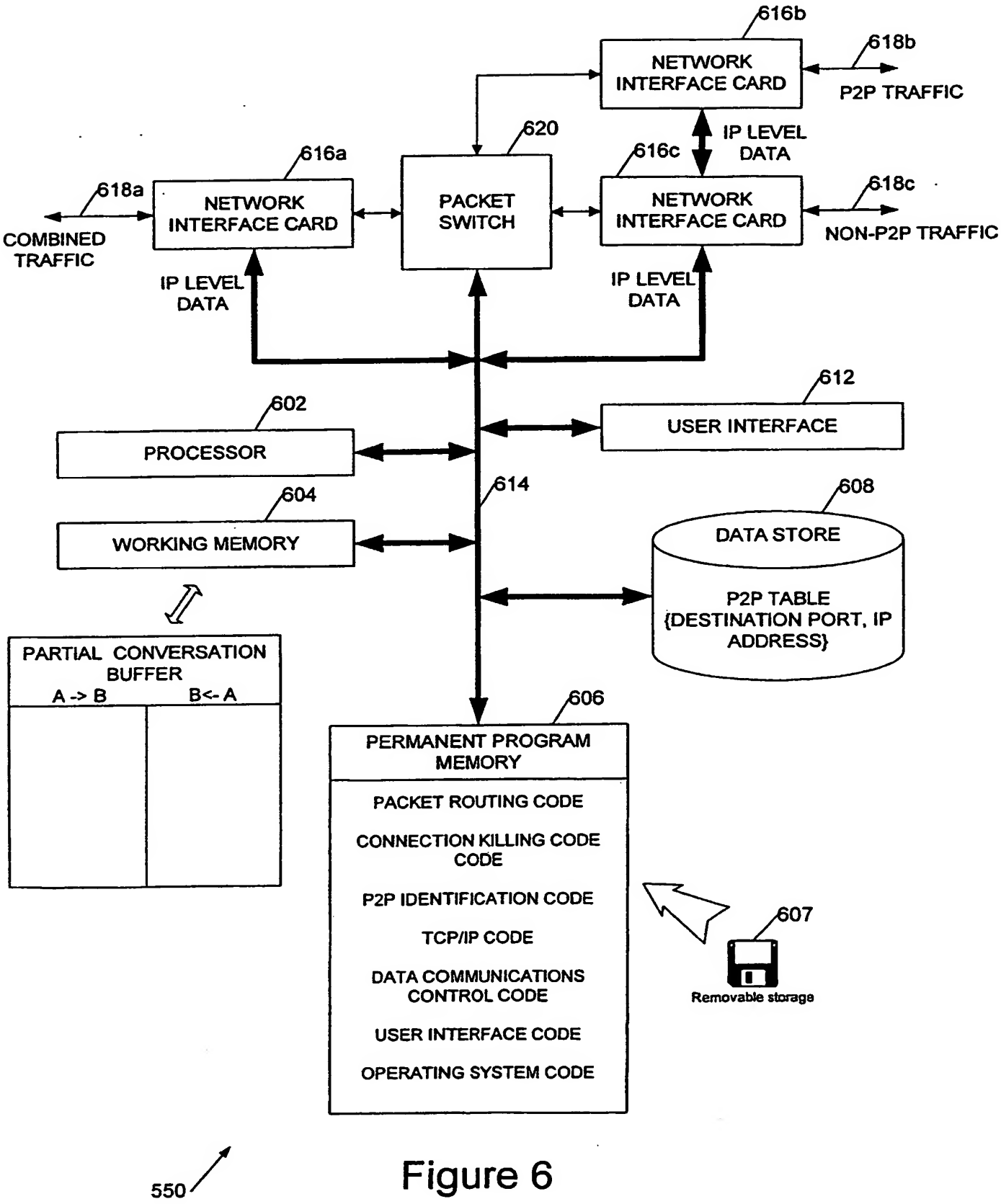
616b
NETWORK INTERFACE CARD
618b
P2P TRAFFIC
IP LEVEL DATA
620
616a
616c
618a
NETWORK INTERFACE CARD
PACKET SWITCH
NETWORK INTERFACE CARD
618c
COMBINED TRAFFIC
NON-P2P TRAFFIC
IP LEVEL DATA
IP LEVEL DATA
612
602
USER INTERFACE
PROCESSOR
614
608
604
DATA STORE
WORKING MEMORY
P2P TABLE {DESTINATION PORT, IP ADDRESS}
PARTIAL CONVERSATION BUFFER
A -> B
B<- A
606
PERMANENT PROGRAM MEMORY
PACKET ROUTING CODE
CONNECTION KILLING CODE CODE
P2P IDENTIFICATION CODE
TCP/IP CODE
DATA COMMUNICATIONS CONTROL CODE
USER INTERFACE CODE
OPERATING SYSTEM CODE
607
Removable storage
550

Figure 6

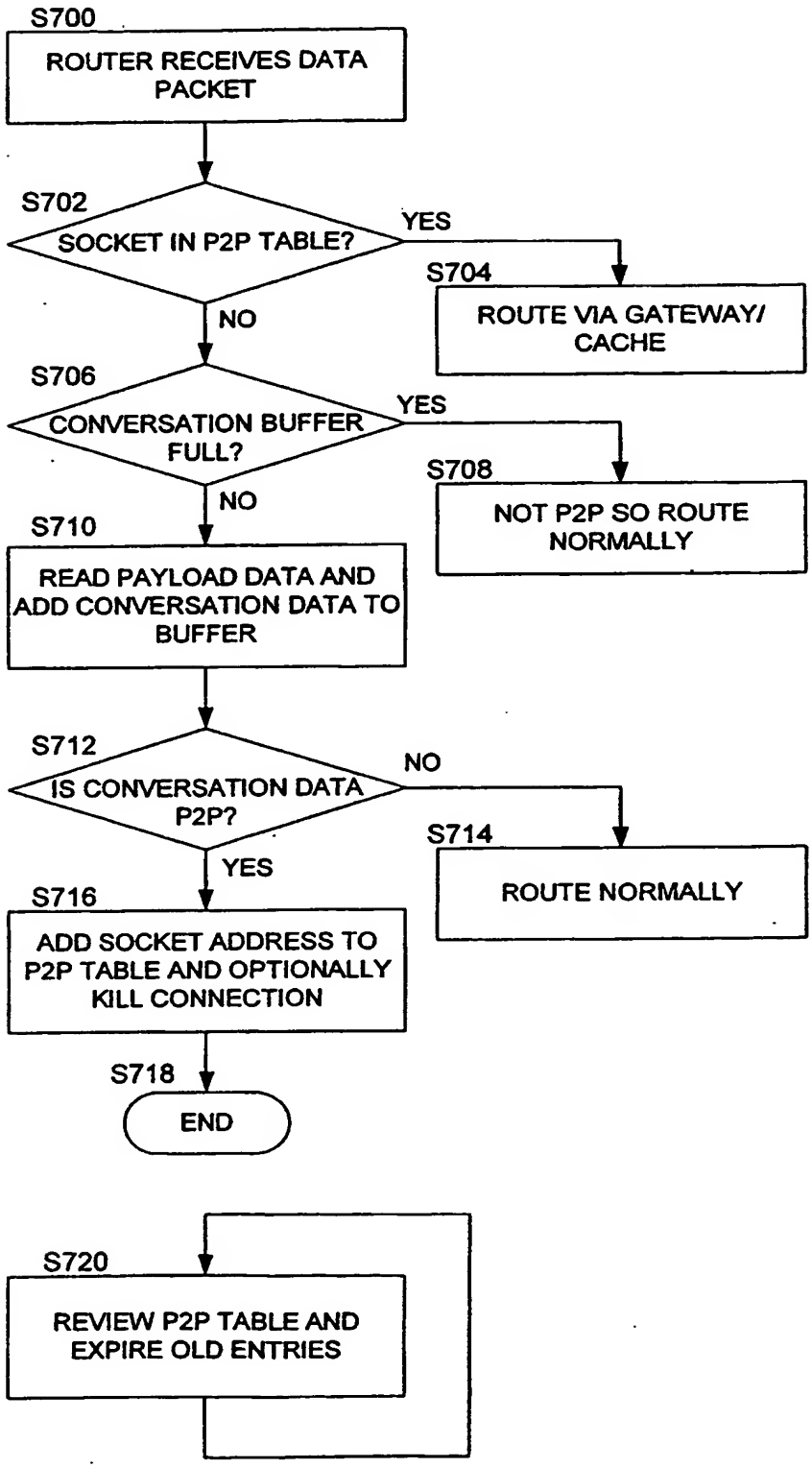
S700
ROUTER RECEIVES DATA PACKET
S702
SOCKET IN P2P TABLE?
YES
S704
ROUTE VIA GATEWAY/ CACHE
NO
S706
CONVERSATION BUFFER FULL?
YES
S708
NOT P2P SO ROUTE NORMALLY
NO
S710
READ PAYLOAD DATA AND ADD CONVERSATION DATA TO BUFFER
S712
IS CONVERSATION DATA P2P?
NO
S714
ROUTE NORMALLY
YES
S716
ADD SOCKET ADDRESS TO P2P TABLE AND OPTIONALLY KILL CONNECTION
S718
END
S720
REVIEW P2P TABLE AND EXPIRE OLD ENTRIES

Figure 7